WHAT IS CLAIMED IS:

1. A rolling element for a continuously variable transmission, comprising:

a plurality of rolling members having rolling contact portions coming into rolling contact with each other via lubricating oil,

wherein at least one of the rolling contact portions includes an outer surface layer having a surface microhardness of not less than Hv 750, a surface residual compressive stress of not less than 1000 MPa and a residual austenite content of not more than 10% by volume.

2. A continuously variable transmission, comprising:

input and output disks arranged in a coaxial and spaced relation to each other; and

a power roller interposed between the input and output disks, the power roller including an inner race, an outer race and a plurality of balls interposed between the inner and outer races, the inner race and the input and output disks having rolling contact portions coming into rolling contact with each other via lubricating oil, the inner and outer races having rolling contact portions coming into rolling contact with the balls via lubricating oil,

wherein at least one of the rolling contact portions includes an outer surface layer having a surface microhardness of not less than Hv 750, a surface residual compressive stress of not less than 1000 MPa and a residual austenite content of not more than 10% by volume.

3. The continuously variable transmission as claimed in claim 2, wherein the at least one of the rolling contact portions comprises a traction surface on the inner race of the power roller which is in contact with the input and output disks.

4. The continuously variable transmission as claimed in claim 2, wherein the at least one of the rolling contact portions comprises a traction surface on each of the input and output disks which is in contact with the inner race of the power roller.

5. The continuously variable transmission as claimed in claim 2, wherein the at least one of the rolling contact portions comprises a bearing surface on each of the inner and outer races which is in contact with the balls.

6. A method for producing a rolling element for a continuously variable transmission, the rolling element including a plurality of rolling members having rolling contact portions coming into rolling contact with each other via lubricating oil, at least one of the rolling contact portions including an outer surface layer, the method comprising:

subjecting a workpiece to either one of carburizing-quenching and carbonitriding-quenching;

subjecting an outer surface of the workpiece to shot peening; and

subjecting the outer surface of the workpiece to finish grinding so as to provide the outer surface layer having a surface microhardness of not less than Hv 750, a surface residual compressive stress of not

less than 1000 MPa and a residual austenite content of not more than 10% by volume.

7. The method as claimed in claim 6, wherein the either one of carburizing-quenching and carbonitriding-quenching is conducted using either one of a vacuum furnace and a plasma furnace.

8. The method as claimed in claim 6, wherein the workpiece is made of steel containing Cr in an amount of 1.2 to 3.2 mass percent and Mo in an amount of 0.25 to 2.0 mass percent.

9. The method as claimed in claim 8, further comprising subjecting the outer surface of the workpiece to grinding between the either one of carburizing-quenching and carbonitriding-quenching, and the shot peening.

10. The method as claimed in claim 9, wherein the either one of carburizing-quenching and carbonitriding-quenching is conducted using a gas furnace.

11. The method as claimed in claim 6, wherein the shot peening is conducted using shots having an average particle diameter of not more than 0.1 mm.

12. The method as claimed in claim 6, wherein the outer surface of the workpiece has a hardness of not less than Hv 720 before the shot peening.

13. The method as claimed in claim 12, wherein the hardness is not more than Hv 760.

14. The method as claimed in claim 13, wherein the residual austenite content in the outer surface of the workpiece is not less than 20% before the shot peening.

15. The method as claimed in claim 14, wherein the residual austenite content is not less than 30%.

16. The method as claimed in claim 10, wherein the shot peening is conducted using shots having an average particle diameter of not more than 0.1 mm.

17. The method as claimed in claim 10, wherein the outer surface of the workpiece has a hardness of not less than Hv 720 before the shot peening.

18. The method as claimed in claim 17, wherein the hardness is not more than Hv 760.

19. The method as claimed in claim 18, wherein the residual austenite content in the outer surface of the workpiece is not less than 20% before the shot peening.

20. The method as claimed in claim 19, wherein the residual austenite content is not less than 30%.